Forestry-Riparian, Decision Rationale

Protection of Riparian Areas: Oregon relies on both regulatory and voluntary measures to provide riparian protections for medium and small fish bearing streams (type "F" streams) and non-fish bearing streams (type "N" streams). Generally, under the current FPA rules, on private forest lands, no tree harvesting is allowed within 20 feet of all fish bearing streams as well as medium and large non-fish bearing streams. Also, all snags and downed wood that don't represent a safety or fire hazard, must be retained within riparian management areas around small and medium fish bearing streams, 50 and 70 feet, respectively. In addition, the FPA rules establish basal area targets for some riparian management areas. For example, along medium fish bearing streams, there is a minimum tree number requirement of 30 trees per 1000 feet. The state has no harvesting restrictions around small non-fish bearing streams.

The state explains that, in addition to regulatory requirements, voluntary measures for high aquatic potential streams (i.e., streams defined as having a low gradient and wide valleys where large woody debris recruitment is most likely to be effective at enhancing salmon habitat) are also adopted by the forestry industry to protect riparian areas. These voluntary measures include large wood placement, additional basal area within stream buffers, large tree retention, and treating large and medium sized non-fish streams the same as fish streams for buffer retentions.[1]

However, NOAA and EPA find that the state's existing measures for forestry riparian protection around medium and small fish bearing streams and non-fish bearing streams do not adequately protect water quality and designated uses. Therefore, per the condition the federal agencies placed on Oregon's coastal nonpoint program, the state still needs to adopt additional management measures for forestry that to provide better protection of riparian areas for small and medium fish bearing streams and non-fish bearing streams.

The need to strengthen the FPA rules for riparian protection is also supported by the state. Oregon, in its March 2014 coastal nonpoint program submittal and in its March 20, 2014 comment letter to NOAA/EPA's December 20, 2013 proposed CZARA decision, agreed with concerns NOAA and EPA had raised in 1998 conditional approval findings for the states coastal nonpoint program about state's forest practices. Specifically NOAA and EPA noted:

> *"medium, small [fish bearing] and non-fish bearing streams may be subject to loss of sediment retention capacity, increases in delivery of fine sediments, and increases in temperature due to loss of riparian vegetation, … [the] provision of adequate long-term supplies of large woody debris in medium, small, and non-fish bearing streams, a shortage of which can result in decreased sediment storage in upstream tributaries, increased transport and deposition downstream, and overall adverse impacts to beneficial uses."*

[1] According to Oregon's March 2014 coastal nonpoint program submittal, information on voluntary efforts was reported to the Oregon Watershed Restoration Inventory.

The Oregon Governor's Office, ODF, and DEQ have also supported the need for improved forestry practices to protect riparian areas during the Board of Forestry's June 23, 2014 Riparian Rule Analysis Workshop.[2]

A significant body of science, including: 1) the Oregon Department of Forestry's (ODF) Riparian and Stream Temperature Effectiveness Monitoring Project (RipStream)[3]; 2) "The Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality" (i.e., the "Sufficiency Analysis")[4]; and 3) the Governor's Independent Multidisciplinary Science Team (IMST) Report on the adequacy of the Oregon forest practices in recovering salmon and trout[5], continues to document the need for greater riparian protection around small and medium fish bearing streams and non-fish bearing streams in Oregon. The 2002 Sufficiency Analysis found that the FPA's riparian buffer protections for small and medium fish bearing streams may cause short-term increases in water temperature for some of these streams. As early as 1999, the IMST study found that the FPA rule requirements related to riparian buffers and large woody debris needed to be improved. Based on their scientific analysis, the team concluded that the existing regulatory approach and voluntary measures was not sufficient for the recovery of wild salmon. The IMST study recommended that non-fish bearing streams should be treated no differently from fish-bearing streams; the same buffer requirements should apply to both stream types. The study also recommended an increase in basal area and requirements for riparian management areas for both small and medium streams, regardless of the presence of fish. Requirements for the number of trees within the riparian management area also should be increased for both fish and non-fish bearing small and medium streams.

The 2011 RipStream reports found that FPA riparian protections on private forest lands did not ensure achievement of the Protection of Cold Water criterion (PCW) for the state water quality standard for temperature. The PCW criterion prohibits human activities, such as timber harvest, from increasing stream temperatures by more than 0.3 ºC at locations critical to salmon, steelhead or bull trout. Specifically, the RipStream analysis found there was a 40 percent increase in the probability that stream temperatures would exceed the PCW criterion for small and medium fish bearing streams in the Oregon Coast Range. The study found that timber harvest conducted on state forest lands, where greater riparian protections are required, did meet PCW requirements.[6] In addition, most private and state

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[2] Summary, Riparian Rule Analysis Workshop, Oregon Board of Forestry, June 23, 2014.

[3] Three peer-reviewed articles present the results of the RipStream analysis:

Dent, L., D. Vick, K. Abraham, S. Shoenholtz, and S. Johnson. 2008. Summer temperature patterns in headwater streams of the Oregon Coast Range. Journal of the American Water Resources Association 44: 803-813.

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[4] Oregon Department of Forestry and Oregon Department of Environmental Quality. 2002. Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality, Oregon Department of Forestry and Oregon Department of Environmental Quality. October 2002.

[5] Independent Multidisciplinary Science Team. 1999. Recovery of Wild Salmonids in Western Oregon Forests: Oregon Forest Practices Act Rules and the Measures in the Oregon Plan for Salmon and Watersheds. Technical Report 1999-1 to the Oregon Plan for Salmon and Watersheds, Governor's Natural Resources Office, Salem, Oregon.

[6] In Oregon, timber harvests on state forest land need to preserve a 25 foot no-cut buffer and an overall riparian management area of 170 feet. Limited harvest is allowed within 100 feet of the streams to achieve mature forest conditions and throughout the rest of the riparian management area, a density of 15 to 70 trees per 1000 feet must be maintained.

forest land analyzed for the study had greater no-cut buffers than required under the FPA. The RipStream analysis found that greater temperature increases occurred on private sites that had riparian no-cut buffers approaching the FPA rule requirements. The study attributed the increase in temperature was likely due to shade loss and that both riparian canopy levels and tree height determined the amount of shading provided to a stream.

Oregon has also been investing in three paired watershed studies[8]. These studies are designed to analyze the effects of timber harvesting on a watershed and reach scale. Several groups have cited the paired watershed study as evidence that the current FPA practices for riparian protection are effective at achieving water quality standards and protecting designated uses. Unpublished data from the Hinkle Creek study indicates that changes in stream temperature after timber harvesting along non-fish bearing streams were variable and resulted in a net 0.5 ºC decrease in observed temperature. In addition, there was no measureable downstream effect on temperatures. However, as Kibler (2007) notes, the variation in stream temperature and overall net observed temperature decrease may be attributable to increased slash debris along the stream after harvest as well as a likely increase in stream flow post-harvest that could prevent an increase in temperatures and contribute to lower mean stream temperatures.[9] Therefore, there may be other factors at play that make it difficult to draw any definitive conclusions about the adequacy of the FPA practices from their results.

In DEQ's evaluation of the study results, staff concluded that temperature data from Hinkle Creek and Alsea River studies actually show increases in fish-bearing streams within the range of responses from the RipStream Study.

NOAA and EPA note that the state is working to address some of the inadequate riparian protection measures in the FPA. The Oregon Board of Forestry (Board) has the authority to regulate forest practices through administrative rule making and could require changes to the FPA rules to protect small and medium fish bearing streams. The Board, recognizing the need to better protect small and medium fish bearing streams, directed ODF to undertake a rule analysis process that could lead to revised riparian protection rules. At the Board's September 2014 meeting, ODF management are scheduled to present the results of the Board's June 2014 Riparian Rule Analysis Workshop and propose next steps for the Board in moving forward with the rule alternatives. NOAA and EPA encourage the state to move forward with this rule making process expeditiously. Until FPA rule changes are adopted, the federal agencies cannot consider them as part of the state's coastal nonpoint program.

However, even if the Board does adopt enhanced protections for small and medium fish bearing streams that are designed to meet water quality standards, the federal agencies remain concerned that the Board and ODF are not considering increased protections for riparian areas around non-fish bearing

[8] http://watershedsresearch.org/watershed-studies/

[9] Kibler, K.M. 2007. The Influence of Contemporary Forest Harvesting on Summer Stream Temperatures in Headwater Streams of Hinkle Creek, Oregon. Thesis for the degree of Master of Science in Forest Engineering presented on June 28, 2007. Oregon State University. http://watershedsresearch.org/assets/reports/WRC_Kibler,Kelly_2007_Thesis.pdf

streams. The state also must identify and adopt additional management measures necessary to protect small non-fish bearing streams to ensure attainment of water quality standards and designated uses.

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Comment [AC1]: Confirm this is accurate. Summary info obtained from http://www.oregon.gov/OPSW/archives/riparian/appndxapgms.pdf (see pg. 4-5)

The state explains that, in addition to regulatory requirements, voluntary measures for high aquatic potential streams (i.e., streams defined as having a low gradient and wide valleys where large woody debris recruitment is most likely to be effective at enhancing salmon habitat) are also adopted by the forestry industry to protect riparian areas. These voluntary measures include large wood placement, additional basal area within stream buffers, large tree retention, and treating large and medium sized non-fish streams the same as fish streams for buffer retentions.[1]

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> *"medium, small [fish bearing] and non-fish bearing streams may be subject to loss of sediment retention capacity, increases in delivery of fine sediments, and increases in temperature due to loss of riparian vegetation, … [the] provision of adequate long-term supplies of large woody debris in medium, small, and non-fish bearing streams, a shortage of which can result in decreased sediment storage in upstream tributaries, increased transport and deposition downstream, and overall adverse impacts to beneficial uses."*

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[1] According to Oregon's March 2014 coastal nonpoint program submittal, information on voluntary efforts was reported to the Oregon Watershed Restoration Inventory.

Rule Analysis Workshop.[2] ~~(I would reword this to say, "The Oregon Governor's Office, ODF and DEQ have also stated that the ODF regulations are not fully protective of the State's water quality standards in testimony to the Board of Forestry." (Essentially, Richard Whitman from the Gov's office said, we can no longer say that we are not doing harm following our ODF regulations.) (We will~~

Comment [AC2]: Is this an accurate statement? Can we site specific BOF meeting notes and/or prepared statements to the Board that supports such a statement from each agency?

A significant body of science, including: 1) the Oregon Department of Forestry's (ODF) Riparian and Stream Temperature Effectiveness Monitoring Project (RipStream)[3]; 2) "The Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality" (i.e., the "Sufficiency Analysis")[4]; and 3) the Governor's Independent Multidisciplinary Science Team (IMST) Report on the adequacy of the Oregon forest practices in recovering salmon and trout[5], continues to document the need for greater riparian protection around small and medium fish bearing streams and non-fish bearing streams in Oregon. The 2002 Sufficiency Analysis found that the FPA's riparian buffer protections for small and medium fish bearing streams may cause short-term increases in water temperature for some of these streams. As early as 1999, the IMST study found that the FPA rule requirements related to riparian buffers and large woody debris needed to be improved. Based on their scientific analysis, the team concluded that the existing regulatory approach and voluntary measures was not sufficient for the recovery of wild salmon. The IMST study recommended that non-fish bearing streams should be treated no differently from fish-bearing streams; the same buffer requirements should apply to both stream types. The study also recommended an increase in basal area and requirements for riparian management areas for both small and medium streams, regardless of the presence of fish. Requirements for the number of trees within the riparian management area also should be increased for both fish and non-fish bearing small and medium streams.

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riparian protections are required, did meet PCW requirements.[6] In addition, most private and state forest land analyzed for the study had greater no-cut buffers than required under the FPA. The RipStream analysis found that greater temperature increases occurred on private sites that had riparian no-cut buffers approaching the FPA rule requirements. The study attributed the increase in temperature was likely due to shade loss and that both riparian canopy levels and tree height determined the amount of shading provided to a stream.

~~Other independent research, including the IMST (1999), Ligon et al. (1999), Bestchta et al. (1995), Botkin et al. (1995) and Murphy (1995),by [X, Y, Z][7] also identified the need for increased riparian management area protection for salmon and water quality. supports these findings that the state's existing forestry riparian protections are not sufficient for achieving water quality standards. For example, based on synthesis of several hundred studies, the IMST found that the Oregon FPA's current rules for riparian protection, large wood management, sedimentation , and fish passage were not adequate to recover depressed salmonid stocks. I suggest we delete this paragraph~~

~~For example, X, which looked at ****, found that *****.~~

Oregon has also been investing in three paired watershed studies[8]. These studies are designed to analyze the effects of timber harvesting on a watershed and reach scale. ~~Unpublished data from the Hinkle study indicates that changes in stream temperature after timber harvesting along non-fish bearing streams was variable and resulted in a net 0.5 ºC decrease in observed temperature. In addition, there was no measureable downstream effect on temperatures. [Any other results from studies we need to acknowledge here? What about Trask/Alsea—anything on riparian protection??] (We will need to build in some language here.)~~

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Comment [AC3]: Double check buffer requirements for state forest land in footnote. Pulled from RipStream paper but were in metric units. Attempted to convert back but rounding errors may have occurred.

Comment [AC4]: What does this mean? How is canopy level different that tree height? Are we talking canopy density/thickness?

Comment [HA5R4]: Yes, I believe so. It is the density of the canopy.

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Comment [AC6]: Would be great to list a few other current studies since the industry complains that we rely on old stuff from the early 2000s. Also, would be good to cite a study or two that specifically talk about protection around non-fish streams since the "big 3" above seem to focus on F streams.

Comment [HA7R6]: RipStream is the most current study besides the paired watershed study. I think we should delete this paragraph because it seems the most relevant studies were already mentioned.

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[7] ~~[full citations for research X, Y, Z???]~~

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Comment [AC8]: We'll need to update this statement before we publish with latest info.

However, even if the Board does adopt enhanced protections for small and medium fish bearing streams that are designed to meet water quality standards, the federal agencies remain concerned that the Board and ODF are not considering increased protections for riparian areas around non-fish bearing streams. The state also must identify and adopt additional management measures necessary to protect small non-fish bearing streams to ensure attainment of water quality standards and designated uses.